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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/494,534	01/31/2000	Kimitaka Murashita	1080.1078/JDH	3593

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EXAMINER	
FOULADI SEMNANI, FARANAK	
ART UNIT	**PAPER NUMBER**
2672	18

DATE MAILED: 03/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/494,534	MURASHITA ET AL.	
	Examiner	Art Unit	
	Faranak Fouladi	2672	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 January 2000* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to communications: application, filed on 01/31/00; RCE, filed on 10/02/03; Amendment D, filed on 02/02/04; and Amendment E, filed on 02/11/04.
2. Claims 1-33 are pending in the case, with claims 1, 14, 15, 16, 17, 18, 20-27, 29, 31, and 33 being independent.
3. The present title of the application is "Display Characteristics Recognition Apparatus, Display Characteristics Recognition Program Storage Medium, Computer System, Display Characteristics Adjusting Apparatus and Display Characteristic Adjusting Program Storage Medium" (as originally filed).
4. The indicated allowability of claim 17 is withdrawn in view of the newly discovered reference(s) to Stokes US 5,611,030 patented 03/11/1997. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1-8, 11-17, 20-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mclaughlin et al., [US 5739809], patented on 04/14/1998 in view of Stokes [US 5,611,030], patented on 03/11/1997.

7. As per independent claim 1, "a display characteristics recognition apparatus comprising:

a signal output unit connected to a display unit displaying an image according to a signal entered (Mclaughlin et al. discloses a signal output unit and a display unit in col. 4 lines 58-67),

said display unit displaying the image with a color displayed according to both the signal and a display characteristic of said display unit (Mclaughlin et al. discloses a display unit in col. 5 lines 5-10, lines 14-29),

said signal output unit outputting a color chart signal representative of a color value to said display unit;

an input unit receiving interactive user input, the input identifying or indicating a perceived color perception category perceived by the user to include the color displayed on said display unit in accordance with the color chart signal outputted from said signal output unit where (Mclaughlin et al. discloses in Fig. 5, Fig. 6, Fig. 11); and

a display characteristic identification unit automatically determining a value approximating the display characteristic of said display unit in accordance with the color value of the color chart signal outputted from said signal output unit and

in accordance with the interactive input entered through said input unit (Mclaughlin et al. discloses in col. 5 lines 33-48, col. 8 line 17-21).

McLaughlin disclose automatically determining a display characteristic or parameter during calibration. McLaughlin disclose in col. 8 lines 17-21 "...automatically corrects any display parameters whose value differs from the desired value thereof (i.e., whose value differs from the value most recently determined by the inventive display control or calibration software)." McLaughlin does not explicitly disclose, "a color perception category comprises a range of a substantial number of humanly perceptible gradations of color within such color perception category" in his invention. However it is well known in the field of art and as admitted by applicant on page 23 line 23 – page 24 line 7 and also disclosed by stokes in col. 6 line 53-65 categorical color perception and its understanding came from a research and that introduced a concept of basic color terms and identified 11 basic color terms (which are common in all developed languages).

Stokes disclose in col. 3 lines 43-44 "a method of mapping source device colors to destination device colors in a computer graphics system". Stokes disclose using a range of colors in his invention in col. 1 lines 42-44, "The color range available to an imaging device is referred to as its color gamut". Stokes disclose "characterization of color boundaries" in Fig. 2, Fig. 4 and in col. 7 lines 2 based on Categorical color perception and based on psychophysical experimentation which are indicative of what an average user is likely to call the color in question (col. 3 lines 57-60). Stoke does not explicitly disclose "interactive user input".

It would have been obvious to an ordinary person skilled in the art at the time of invention to use the gamut mapping method of Stokes with the "user interface software" of McLaughlin to calibrate and or control the display in response to a user selection of a color from a categorical color perception (instead of changing the RGB values trying to match the display color with a perceived color).

8. With respect to dependent claim 2, "...wherein said display characteristics identification unit determines, as the display characteristic, a relationship between a signal representative of a white image and a color of an image displayed on said display unit in accordance with the signal." Mclaughlin et al. discloses in col. 5 lines 33-48; col. 10 lines 50-55.

9. With respect to dependent claim 3, "...wherein said display unit is selectively set up to any one of a plurality of display characteristics, and said display characteristics identification unit determines display characteristics parameters to which said display unit is set up." Mclaughlin et al. discloses in col. 5 lines 33-48; and col. 7 lines 1-5, 34-39.

10. With respect to dependent claim 4, "...wherein said display unit is a display in which an image is displayed through emission of light, and said display characteristics identification unit determines, as the display characteristic, luminance of said display." Mclaughlin et al. discloses in col. 15 lines 37-43.

11. With respect to dependent claim 5,"...wherein the color chart signal is such that the color value is in one of two color perception areas adjacent to one another on a chromaticity diagram, and color chart signal is displayed in chromaticity according to the display characteristic." Mclaughlin et al. discloses in col. 14 lines 15-55.
In Mclaughlin display characteristics (display parameters) are saved in profiles data and the color chart signal is displayed according to this profiles data.

12. With respect to dependent claim 6, "...wherein said input unit enters a name of a color interactively selected from among color names associated with the color value of the color chart signal." Mclaughlin et al. discloses a virtual control that allows a user to alter one or two primary color in col. 10 lines 56-64. Although Mclaughlin et al. do not disclose entering a name of a color from among color names but it would have been obvious to a person with ordinary skill in the art to add a color name input unit entering a name of a color selected from among colors names to Mclaughlin virtual control to simplifying the process of changing the colors.

13. With respect to dependent claim 7, "...wherein said signal output unit outputs to the display unit a plurality of color chart signals each representative of a monochrome figure with a different color value to said display unit; said input unit enters a name of a color of each of a plurality of monochrome figures; and said display characteristics identification unit determines the display characteristic of said

display unit in accordance with the color values of the plurality of color chart signals outputted from said signal output unit and the plurality of names of the color entered through said color name input unit." Mclaughlin et al. discloses in col. 14 lines 5-50.

14. With respect to dependent claim 8, "...wherein said signal output unit outputs one of the plurality of color chart signals, and thereafter outputs, of the plurality of color chart signals, a color chart signal according to the name entered through said input unit to said display unit." Mclaughlin et al. discloses in col. 14 lines 5-50.

15. With respect to dependent claim 11, "...wherein said signal output unit outputs a series of color chart signals such that a series of colors in adjacent areas for two sorts of colors adjacent to one another on a chromaticity diagram are displayed, and the interactive input indicates or identifies a color corresponding to a boundary of two of the perception areas." Stokes disclose in col. 7 lines 44-54.

16. With respect to dependent claim 12, "...wherein said display characteristics recognition apparatus further comprises a profile producing unit for generating data representative of display characteristics determined by said display characteristics identification unit in a predetermined format to produce a profile representative of characteristics as to display of an image by said display unit including the data." Mclaughlin et al. discloses in col. 16 lines 6-10.

17. With respect to dependent claim 13, "...wherein said display characteristics recognition apparatus further comprises: a profile storage unit for storing various sorts of profiles each representative of characteristics as to display of an image by a display unit including data indicative of various display characteristics in a common format; and profile selection unit for selecting one profile from among the various sorts of profiles stored in said profile storage unit in accordance with the display characteristics determined by said display characteristics identification unit." Mclaughlin et al. discloses in col. 16 lines 23-29, and lines 34-41.

18. Claim 14 recites a storage medium storing the display characteristics recognition program. It is inherent to have a medium configured to store or transport computer readable code in a computer system. For example compact disc has been included and used in the computer systems since 1990s or magnetic data storage devices have been used since 1980s.

19. Claim 15 recites a computer system for the display characteristic recognition of apparatus of claim 1, therefore they are similar in scope and rejected under the same rationale.

20. Claims 16 is similar to claim 15 and therefore is rejected under the same rational.

21. Claim 20 is similar to claim 1 and therefore is rejected under the same rational.

22. Claim 21 recites a computer-readable medium storage storing a display characteristic adjusting program to operate the display characteristics adjusting

apparatus of claim 20. It is inherent to have a medium configured to store or transport computer readable code in a computer system. For example compact disc has been included and used in the computer systems since 1990s or magnetic data storage devices have been used since 1980s.

23. Claim 22 is similar to claim 15 and therefore is rejected under the same rational.

24. Claim 23 is similar to claim 1 and therefore is rejected under the same rational.

25. Claim 24 recites method steps performed by the apparatus of claim 23; therefore they are similar in scope and rejected under the same rationale.

26. Claim 25 recites a computer-readable medium storage storing a program for executing the method of claim 24. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have implemented the method of claims 24 as computer executable instructions stored on a computer-readable medium so that the method of claim 24 can be ported to other computer systems.

27. Claim 26 recite apparatus for performing the method of claim 24; therefore they are similar in scope and rejected under the same rationale.

28. With respect to independent claim 27, "a method of color calibration, comprising: displaying a color with a display system; receiving interactive input identifying or indicating a perceived color perception category of the display color, the color perception category comprises a range of a substantial number of humanly perceptible gradations of color within such color perception category; and

automatically determining a value of a characteristics of the display system based on the interactively indicated color perception category." Mclaughlin et al. discloses all the claimed limitations in col. 14 lines 1-41and Fig. 10 except explicitly disclosing, "a color perception category comprises a range of a substantial number of humanly perceptible gradations of color within such color perception category".

Categorical color perception and its understanding came from a study conducted by Berlin and Kay in Berkeley University of California, 1969 *(Basic Color Terms: Their Universality and Evolution).* Berlin and Kay introduced a concept of basic color terms and identified 11 basic color terms (which are common in all developed languages) and this concept has been used in display calibration and color matching systems (because these colors are used consistently by each individual regardless of race, color or nationality.)

Stokes disclose in col. 3 lines 43-44 "a method of mapping source device colors to destination device colors in a computer graphics system". Stokes disclose using a range of colors in his invention in col. 1 lines 42-44, "The color range available to an imaging device is referred to as its color gamut". Stokes disclose "characterization of color boundaries" in Fig. 2, Fig. 4 and in col. 7 lines 2 based on Categorical color perception and based on psychophysical experimentation which are indicative of what an average user is likely to call the color in question (col. 3 lines 57-60). Stoke does not explicitly disclose "interactive user input".

It would have been obvious to an ordinary person skilled in the art at the time of invention to use the gamut mapping method of Stokes with the "user interface

software" of McLaughlin to calibrate and or control the display in response to a user selection of a color from a categorical color perception (instead of changing the RGB values trying to match the display color with a perceived color).

29. With respect to dependent claim 28, "...wherein the color perception category is one of two different such categories, and the displayed color is susceptible to being perceived in either of the two different color perception categories according to the value of the characteristic, and where the characteristic is one of luminance and color temperature." Mclaughlin et al. discloses in col. 14 lines 1-41 and col. 15 lines 37-64.

30. With respect to independent claim 29, "a method of color calibration, comprising: causing a display system to emit a color, where the emitted color is product of an unknown value of a characteristic of the display and a color value passed to the display; receiving input identifying or indicating a perceived color perception category of the emitted color, the color perception category comprises a range of a substantial number of humanly perceptible gradations of color within such color perception category; and automatically determining the unknown value of the characteristic of the display based on the perceived color of the emitted color." Mclaughlin et al. discloses in col. 1 lines 45-62 and also rejected under the same rational as applied to claim 27.

31. With respect to dependent claim 30, "a method according to claim 29, wherein the received input identifies the perceived color perception category as one of white, orange, brown, gray, yellow, purple, pink, red, green, blue, or black." Stokes disclose in col. 6 lines 53-65.

32. Claim 31 is similar to claim 29 and therefore is rejected under the same rational.

33. With respect to dependent claim 32, "...wherein the automatically selected value of the characteristic of the display system is one of the first and second values of the display characteristic, and wherein the display characteristic is one of luminance and color temperature." McLaughlin disclose in col. 3 line 34-40.

34. With respect to independent claim 33, "a method comprising automatically generating a color profile of a display system by interactively identifying perceived color perception categories of predetermined color values displayed by the display system, and matching the perceived color categories to color categories expected to be perceived when displayed with different values of a display characteristic, the color perception category comprises a range of a substantial number of humanly perceptible gradations of color within such color perception category." Mclaughlin et al. discloses in col. 14 lines 20-30 and Fig. 10. and also is rejected under the same rational as claim 1.

◆ Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mclaughlin et al. in view of Stokes and further in view of reference Tanaka [US 5943036].

35. Regarding claim 9, Mclaughlin et al. disclose the instant claimed invention except for outputting a signal to display unit, causing black to be displayed around the monochrome figure displayed on said display unit according to the color chart signal. Tanaka discloses the output means outputs to display unit a signal causing black to be displayed around the monochrome figure displayed on display unit according to the color chart [col. 6 lines 52-60 and Fig. 4 and 5]. It would have been obvious to a person with ordinary skill in the art to combine the Tanaka's black border signal with the signal output unit of Mclaughlin et al. to enhance the Mclaughlin et al. display unit to display a color on the black background because the black background has no color interference and this makes the color selection easier for the user.

36. Dependent claim 10 is also rejected in view of the above remarks.

◆ Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winter et al. [US 5,381,349] (Winter), patented on 01/10/1995 and in view of Stokes [US 5,611,030], patented on 03/11/1997.

37. With respect to independent claim 18, "a computer system comprising:

a display displaying an image according to a signal entered, said display displaying a color according to both the signal and a luminance display characteristic of said display;

a main frame unit causing said display to display a plurality of monochrome color patches with mutually different luminance of said display unit, each of the plurality of monochrome color patches being displayed with a same color value corresponding to a specific color name; and

an input unit for interactively selecting by a user one of the monochrome patches displayed with a color of the specified color name of a color perception category of the plurality of monochrome patches displayed on said display unit, to said main frame unit in accordance with an operation, where a color perception category comprises a range of a substantial number of humanly perceptible gradations of color within such color perception category,

wherein said main frame unit determines a value of the luminance display characteristic of said display unit in accordance with the color chart signal outputted toward said display unit and the monochrome patch selected through said input unit." Winter discloses in abstract and in col. 1 lines 22-26, 30-34 and col. 6 lines 29-61.

Winter disclose a system for calibrating a color display, color display means for displaying a plurality of color patches of predetermined intensity and a processor

means responsive to a user's indication of a perceived color match between calibration color patch and comparison color patch and to determine a value of the intensity of display according to calibration color patch and comparison color patch selected by the user. Although Winter disclose "displaying color patches with predetermined intensity" but Winter does not explicitly disclose "...patches displayed with a color of the specified color name of a color perception category". Stokes disclose in col. 3 lines 43-44 "a method of mapping source device colors to destination device colors in a computer graphics system". Stokes disclose using a range of colors in his invention in col. 1 lines 42-44, "The color range available to an imaging device is referred to as its color gamut". Stokes disclose "characterization of color boundaries" (in Fig. 2, Fig. 4 and in col. 7 lines 2) based on Categorical color perception and based on psychophysical experimentation which are indicative of what an average user is likely to call the color in question (col. 3 lines 57-60). Stokes associates color name with gamut colors but Stoke does not explicitly disclose "interactive user input".

It would have been obvious to an ordinary person skilled in the art at the time of invention to use the gamut mapping method of Stokes with the "user interface software" of Winter to calibrate and or control the display in response to a user selection of a color of the specified color name for a color patch from a categorical color perception (instead of changing the intensity values).

38. With respect to dependent claim 19, "a computer system according to claim 18, wherein said main frame unit outputs patches representative of a plurality of monochrome patches associated with mutually different luminance of said display unit, each of the plurality of monochrome patches being displayed with such a color that at lease a predetermined ratio of persons have previously recognized it as the color of the specified color name under an associated luminance." Winter disclose in abstract lines 1-5.

Conclusion

39. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892 form.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Faranak Fouladi** whose telephone number is **703-305-3223.** The examiner can normally be reached on Mon-Fri from 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Michael Razavi** can be reach at **703-305-4713**.

Any response to this action should be mailed to:

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Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, sixth-floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is 703-306-0377.

Faranak Fouladi-Semnani
Patent Examiner
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